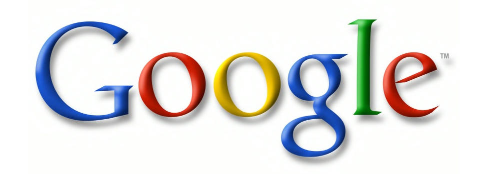
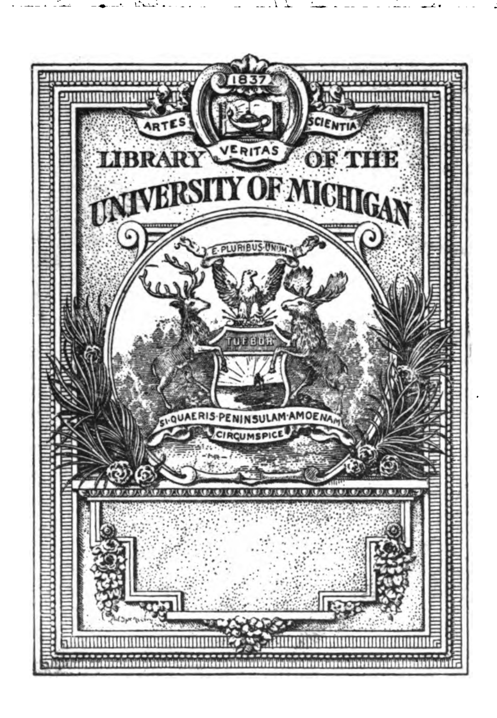
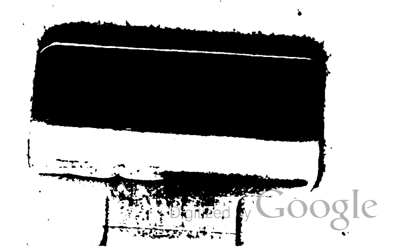



Annual report
New York (State). Forest, Fish and Game Commission




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SIXTH ANNUAL REPORT

OF THE

Forest, Fish and Game Commission.

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ALBANY:
JAMES B. LYON, STATE PRINTER.
1901.



Compliments of
William F. Fox,
Supt. State Forests.

OF THE

Forest, Fish and Game Commission.

ALBANY, N. Y., *January* 21, 1901.

Hon. S. FREDERICK NIXON, *Speaker of the Assembly:*

Sir.—We have the honor to submit herewith, as required by law, the official report of this Commission for the year ending September 30, 1900.

Very truly yours,

W. AUSTIN WADSWORTH,
President.

PERCY S. LANSDOWNE,
DELOS H. MACKEY,
B. FRANK WOOD,
DEWITT C. MIDDLETON,
Commissioners of Forest, Fish and Game.

STATE OF NEW YORK.

Forest, Fish and Game Commission.

W. AUSTIN WADSWORTH, *President*, - - -	GENESEO, N. Y.
PERCY S. LANSDOWNE, *Secretary*, - - - -	BUFFALO, N. Y.
DELOS H. MACKEY, - - - - - - - -	MERIDALE, N. Y.
DEWITT C. MIDDLETON, - - - - - -	WATERTOWN, N. Y.
B. FRANK WOOD, *Shellfish Commissioner*, - - -	JAMAICA, N. Y.
JOHN D. WHISH, *Assistant Secretary*, - - - -	ALBANY, N. Y.

Standing Committees.

Executive—Messrs WADSWORTH, LANSDOWNE, MIDDLETON.
Forest Preserve and State Lands—Messrs. MIDDLETON, MACKEY, WADSWORTH.
Hatcheries, Fish Culture and Game—Messrs. MACKEY, WOOD, WADSWORTH.
Shellfish, Licenses and Permits—Messrs. WOOD, LANDSDOWNE, MACKEY.
Legislation—Messrs. LANSDOWNE, WOOD, MIDDLETON.

Superintendent of Forests, - - -	WILLIAM F. FOX, Albany, N. Y.
State Fish Culturist, - - - - -	A. NELSON CHENEY, Glens Falls, N. Y.
Chief Game Protector, - - - - -	J. WARREN POND, Albany, N. Y.
Assistant Chief Protector, - - -	JOHN E. LEAVITT, Johnstown, N. Y.
Assistant Chief Protector, - - -	MANNISTER C. WORTS, Oswego, N. Y.
Chief Firewarden, - - - - -	LESTER S. EMMONS, Oneonta, N. Y.
License Clerk, - - - - - -	A. B. STROUGH, Albany, N. Y.
Audit and Pay Clerk, - - - - -	A. J. MULLIGAN, Albany, N. Y.
Clerk to Chief Protector, - - -	WM. WOLF, Waterford, N. Y.
Clerk to Fish Culturist, - - -	CHARLES E. KNOWLES, Buffalo, N. Y.
Stenographer, - - - - -	MISS J. J. FOURQUREAN, Albany, N. Y.

Report of the Forest, Fish and Game Commission.

To the Honorable the Legislature:

As required by law, the Forest, Fish and Game Commission herewith submits the annual report of the department for the year ending on September 30 last.

The Commission calls your attention to the accompanying reports of the Superintendent of Forests, the Fish Culturist, the Shellfish Commissioner and the Chief Game Protector, and respectfully makes the following

RECOMMENDATIONS.

That the Constitution be so amended as to provide for the practice of conservative forestry on State lands (a vast estate of 1,384,128 acres, of a value variously estimated at from $5,000,000 to $10,000,000, of which this Commission has sole care and control, and which it must protect from damage by trespass, fire and poaching), and the sale of dead, dying or mature timber under proper safeguards.

That the excellent work done by the United State government in connection with our foresters, as shown by the report of the United States Forestry Department herewith submitted, be continued and an appropriation of $3,500, as requested, be made for that purpose.

That a force of Rangers be appointed for the prevention of forest fires, timber stealing and poaching on State land.

That all town fire wardens be allowed a moiety of the fine in criminal actions, after payment of expenses, in cases where they can secure evidence that will lead to conviction for setting forest fires.

That the Board be allowed to set aside certain limited portions of the State lands as game refuges, and absolutely to prohibit the killing of wild animals therein.

That the anti-hounding law be permanently extended, and that no dogs of a breed which will pursue deer be allowed in the woods at any time.

That the killing of does be prohibited at all times.

That spring duck shooting be forbidden.

That there should be no discrimination by this State, in the matter of hunting and fishing, against any citizen of the United States except in cases of citizens of States which discriminate against the State of New York.

That the Commission have power, after stocking or restocking streams, to close them to public fishing for a term not to exceed two years.

Above all, we would especially call your attention to the difficulty of enforcing the law in regard to the pollution of streams. This is a matter of vital importance and not to be dismissed as affecting only the lives of some fishes, the pleasure of some anglers or the dividends of some pulp mills. We are a water drinking people and we are allowing every brook to be defiled. Nature provides that they should be kept pure by animals which feed on the dead matters which fall into them, but the chemicals with which they are polluted can destroy all forms of life, so that every beast which dies in the mountains will soon roll down into our reservoirs, pickled in acids which no fish or bacteria can touch and live. It is not necessary

to destroy or hamper any industry in order to prevent the pollution of water courses. What is really needed is to check the criminal selfishness of those who would rather poison their fellow citizens with their offal than to spend a few dollars to take care of it.

By the COMMISSION.

JOHN D. WHISH, *Assistant Secretary.*

Scientific Forestry.

Work and Suggestions of the United States Experts.

To the Forest, Fish and Game Commission:

GENTLEMEN.—The preparation of a working plan for a portion of the Forest Preserve, undertaken at the request of the Forest, Fish and Game Commission, by the Division of Forestry of the United States Department of Agriculture, has been successfully completed in the field and the results are nearly ready for publication. The work was done under the appropriation of $2,000 made by the Legislature at its last session, upon Township 40, Totten and Crossfield Purchase, in Hamilton county, which contains the well-known Raquette Lake. The principal conclusions reached by this investigation may be summarized as follows:

First. Under the systematic and conservative system of management which the Division of Forestry will advise in the working plan now in preparation, only the mature softwood timber will be cut, and that under close restrictions and constant supervision. Particular attention will be given to the protection of the mountain summits and the natural beauties of Raquette Lake. To this end ample reservations will be recommended, which will thoroughly protect the watersheds and preserve the lake shores from damage. There will be no interference whatever with the value of the forest as a conserver of the water supply.

The above statements as to watersheds and water supply are confirmed by Mr. F. H. Newell, Hydrographer of the United States

Geological Survey, who, after personal examination of Township 40 on the ground, approved the recommendations to be made in the working plan.

Second. Township 40 is a well-timbered township, on which there is a sufficiently heavy stand of mature spruce to insure profitable lumbering under economical and conservative methods. There is also mature pine and balsam which should be cut.

Third. The topography of this Township makes lumbering comparatively easy, since the greater part is tributary to Raquette Lake, which occupies the center of the Township. The Raquette Lake Railway is at present the only means of getting the timber from Township 40 to the market. With the improvement of the river between Raquette and Forked Lakes, which will be strongly advised in the working plan now nearly completed, a second outlet will be secured for this timber on the greater part of Township 40, and also for all other timber tributary to Raquette Lake. The large mills at Tupper Lake and Piercefield are located on the course of Raquette River. The improvement of this river, so that logs might be driven from Raquette Lake, would make a material improvement in the bids submitted by contractors.

Fourth. Township 40 is covered by virgin forest. In a forest of this character the annual decay of the over-mature trees offsets the annual growth. Each year many large trees die, or are blown down and decay. These mature trees, if harvested, would yield a considerable revenue, and at the same time the producing power of the forest being unimpaired, the conditions of growth would be improved. Under conservative lumbering successive crops may be cut from this forest at recurring intervals for an indefinite period.

Fifth. Under practical forestry, this tract will yield a sustained revenue. By the adoption of a conservative and carefully devised

system of lumbering, such as that advised in the working plan for Township 40, the State will receive a sustained and increasing income from the Forest Preserve. This would bring about the right use of the forest resources of the State lands without in any way interfering with the objects for which the Forest Preserve was created, and without injury to the natural beauties of the Park.

From this statement it will be seen that the lumbering of the softwood timber under forest management is safe, practicable and can readily be made profitable financially; that lumbering under the rules to be incorporated in the working plan would tend to improve the condition of the forest; that such lumbering would remove overmature trees which, by deterioration and decay, offset the production of the forest in sound timber; that by such lumbering the productive capacity of the forest would be increased, and that all this may be accomplished wholly without interference with the water supply or with any of the other objects of the Preserve.

The Division of Forestry therefore recommends that the necessary steps be taken to secure the lumbering of Township 40 by conservative methods, and it will shortly submit a detailed working plan prepared for that purpose.

Should the clause of the 1894 amendment to the State Constitution be repealed, which prohibits all cuttings in the New York State Forest Preserve, detailed working plans for the Preserve will be necessary in order to lumber it with the greatest advantage to the State and to the forest. Should the clause fail to be repealed the first time or second time, or any number of times, these working plans will nevertheless be ready to apply and will have a value when the repeal is finally made. The larger the area of the Preserve covered by working plans, the more forcible the argument in favor of the repeal of the clause prohibiting cuttings, since working plans

will be made only for those forest lands which have been proved by thorough investigation to be suitable for practical forestry.

I would strongly advise that the area for which working plans be next prepared shall be Townships 5, 6 and 41, Totten and Crossfield Purchase, Hamilton county.

GIFFORD PINCHOT,

Forester.

Report of the Superintendent of Forests.

To the Forest, Fish and Game Commission:

GENTLEMEN.—I have the honor to submit herewith my annual report on matters connected with the Forest Preserve, and the business incidental to the care, custody and control of the lands owned by the State in the Adirondack and Catskill counties.

AREA OF FOREST PRESERVE.

The area of the Forest Preserve is changing and enlarging continually. It would be difficult to state the exact acreage until our new land list is compiled and published, there being 5,513 separate parcels or titles as shown on the last printed schedule, which was issued in 1897.

There are continual accessions through the purchase of the Forest Preserve Board; and there were recently added 9,969 acres through the sale of bonded lands by the State Engineer and Surveyor. Large areas were also acquired through suits brought to re-establish the State's title to lands which had been lost through cancellations improperly granted several years ago. Other suits for the same purpose are still pending, through which further accessions to the Preserve will be made.

On the other hand, the State lost title to a few small parcels through redemptions and cancellations granted in the Comptroller's office since the publication of the last land list, such action having been based on good and sufficient reasons, and in accordance with

the requirements of the general tax law. The decrease from this source, however, was small.

As no tax sales have been held by the Comptroller during the last five years there has been no gain in acreage from that source; nor is it expected that any considerable area will be acquired through the coming sale which will commence December 10, 1900. Over three-fourths of the lands now in the Preserve were acquired through tax sales in former years, notably those of 1877 and 1881; but since then the acquisitions through this medium have steadily decreased, there having been a marked rise in the value of wild or forest lands due to the withdrawal from the market of the large State holdings, and the continual purchases by the Forest Preserve Board. There has been, also, an active demand for a certain class of Adirondack woodlands by parties who have established or who desire to form private preserves, over one-fourth of the North Woods being held and occupied at present for such purposes. Then, again, the recent high prices for lumber and pulpwood resulted in extensive purchases for business purposes, and many lots, which in former years would have been abandoned and the taxes defaulted, were bought by lumbermen in order to obtain the third cutting of small spruce and other conifers that yet remained on these lands.

Owing to this condition of affairs the owners of Adirondack or Catskill land no longer allow their property to revert for taxes; or, if any does go to sale it is bid in by individuals, and thus the State fails to acquire it. Some holders intentionally allow the taxes on their lands to go unpaid, but it is done for the express purpose of bidding off these same lands at the Comptroller's tax sale, and thereby strengthening their title.

A careful examination of the land records in the Comptroller's office and in the forestry department of your Commission shows

that the area of the Forest Preserve at this date is approximately as follows:

	Acres.
Adirondack Preserve..............................	1,290,987
Catskill Preserve	79,941
	1,370,928

As stated before, this acreage is composed of 5,513 separate lots or parcels, each having its own surveyed boundary lines, as shown on the large maps of the Adirondack and Catskill counties issued by this Department. As these parcels were conveyed separately, either by tax certificate or grantor's deed—most of them by the former—each one rests on its own individual title, and the ownership must be protected accordingly. I mention this in order to give some idea of the clerical work necessary in properly caring for the records pertaining to this vast amount of real estate.

FORESTRY.

Owing to the restrictions of the forestry clause in the State constitution the Department is debarred from undertaking any scientific work for the improvement of the public woodlands or increase of the merchantable product thereon. Scientific forestry, with its thinning and pruning, involves the use of the axe; but the constitutional clause referred to says that the "timber thereon" shall not "be sold, removed or destroyed." Hence, the matured trees must be allowed to decay or be blown down instead of converting them into money and using the proceeds for forest improvement; insect blight and fungal diseases must be permitted to extend their ravages unchecked; and timber that has been scorched by fire or uprooted by windstorms cannot be sold or removed, but must remain in a

tangled slash until some chance fire clears the ground and causes further destruction to the adjoining woodlands.

True, some forestry work might be undertaken in the line of re-foresting or replanting some of the burned or denuded areas on the Preserve, for this would not violate any constitutional restriction. But it would be expensive, and could be carried on only in a small way as an experiment. A special appropriation would be necessary, and it is doubtful whether the Legislature would grant it.

In view of the well-established fact that a State forest can be made to yield a permanent, annual revenue, without any diminution of its area or impairment of its protective functions, it is hoped that the people may consent in time to some modification of the law, so that the public woodlands may be managed in accordance with well approved forestry methods, becoming thereby a source of profit instead of expense.

WORKING PLANS.

In order that the public might better understand the methods referred to and their proposed application to the management of the State forests, it was deemed advisable to have definite working plans made for some particular tract, a detailed description of which, together with explanatory maps, could be printed and circulated among the people. A favorable opportunity presented itself in the general offer made by the Forestry Division of the United States Department of Agriculture, at Washington, D. C., which advertised that it would send competent foresters anywhere, free of charge, to make detailed plans for the care and management of woodlands, the General Government agreeing to pay their salaries provided their expenses were defrayed by the applicant for their services.

As it seemed advantageous to have a careful examination and timber survey made of some good township on the Preserve, the

offer of the United States Forestry Division to send competent men to do such work was accepted. At the same time, through an arrangement with the finance committees of the State legislature, an item was inserted in the annual supply bill by which $2,000 was appropriated for the expenses of the United States foresters while engaged on the proposed work.

The men and the money having thus been provided, the Superintendent of State Forests designated Township 40, Hamilton county (Raquette Lake), as a desirable location for inaugurating a forest survey and securing the information as to timber measurements and other details necessary for a complete working plan. This tract has not been lumbered, and is covered with a "virgin forest," as it is called. Moreover, it adjoins three other townships of the Preserve —5, 6, and 41—which are also covered with a primeval forest in which no cutting has been done, except a small area in the S. E. ¼ of Twp. 6. As the Totten and Crossfield townships contain about 25,000 acres each—land and water—the four just mentioned offer an unbroken forest of 100,000 acres for the examination and report of the foresters.

After a conference with Mr. Gifford Pinchot, chief of the Forestry Division at Washington, the various arrangements were completed, and Mr. Ralph S. Hosmer was detailed to take charge of the work. He selected a camp site on the shore of North Bay, Raquette Lake, where he pitched his tents, and provided accommodations for his party, fourteen in number, including the cook, camp attendant, and axeman. Three foresters, who are in the employ of your Commission, were also ordered to report to Mr. Hosmer and assist him in his work. One of these State foresters, Mr. H. S. Meekham, an Adirondack surveyor of many years experience, was assigned to the important work of making the necessary field surveys and topo-

graphical map; the others, Mr. Ralph C. Bryant—a graduate of the New York State College of Forestry—and Mr. Grant B. Bruce assisted in the work of taking tree measurements.

Through the courtesy of Hon. Edward A. Bond, State Engineer and Surveyor, I obtained from his Department the loan of a large amount of camp equipment, including eight tents, sheet iron stoves, surveying and draughting instruments, and various necessary articles. Had it not been for his kindly assistance it would have been difficult to keep the expense of this forestry camp within the limit of the appropriation. In addition to the articles thus loaned I purchased for the use of the party two "guide" boats, United States flag, a planimeter, mapping and draughting material, blankets, cooking utensils, etc.

The field work having been completed the party broke camp in the latter part of October. I then made an arrangement with Mr. Andrew Sims, who lives at Raquette Lake, to store the entire outfit in the second story of his boat house, and the property is there now in his care, including the boats, tents, stoves, tools, table ware, cooking utensils, etc.

From what I observed during my visits to the camp, and from a careful examination of the maps in course of preparation, also the sheets showing the timber measurements by species, I am able to commend highly the intelligence and industry with which the work was conducted. Whether the working plans are ever used or not, the value of the statistics and knowledge of forest conditions thus obtained will amply offset the expense. It is unnecessary here to give any of the results, facts and figures obtained by this survey, as this information will soon be published in full by the United States Forestry Division. A bulletin relating to this particular work, giving the results in detail and furnishing an intelligent, conservative

working plan for the management of that township, will soon be printed at Washington, and sent free to any applicant.

For the benefit of some of our good forestry people who deprecate any suggestion that implies the cutting of a single tree, it should be said that the working plan under consideration does not necessitate forest destruction in any way. Whatever cutting may be recommended will tend to an improvement of the forest, an increase in the volume of timber, a greater product, and a permanent revenue.

PRODUCTION OF ADIRONDACK FORESTS.

Under a provision of the State forestry law the Superintendent of Forests is required to collect annually from the various sawmills and pulpmills statistics showing their annual product, so far as it is composed of timber taken from the Adirondack and Catskill regions. I commenced the compilation and publication of this class of statistics in 1890, and since that time they have appeared regularly in the annual reports of the Department. Of late years Mr. A. B. Strough, of your office, has rendered valuable assistance in the collection and tabulation of this important information, enabling me to devote more time to other duties.

As the reports from the various mills, showing their annual output, cannot well be made until some time after the close of the year, I am unable to give the figures for 1900. But, for the reason just stated, the lumber and pulpwood statistics for 1899 were not obtainable in time for the report of that year, and so I insert them now. As I have explained in previous reports these statistics are not based on mere estimates. They may be accepted as reliable, because they are furnished in every instance from the office of the various firms, companies, or individuals, the figures being taken from their books or based on their log contracts.

These statistics are of value not only to the trade, but they invite the attention of all who are interested in our woodlands and whatever may relate to them. As the acreage of the Adirondack forests is well known, these figures indicate the percentage of that territory from which the merchantable timber is removed each year. This does not imply that the land is stripped or denuded of its forest covering; for, as a general rule, the hardwoods, which form about seventy per cent. of the timber, are left untouched. But our Northern forests yield, on an average, about 3,500 feet of softwood timber per acre—saw logs and pulpwood—under the close cutting which now prevails. With this factor as a divisor one can easily determine the area that is cut over each year, and, approximately, the number of years that must elapse before there will be no merchantable softwood left except that which is on the State preserve.

The amount of timber—log measure—taken from the Adirondack forests in 1899 was as follows:

	Feet.
Spruce (sawmills)	148,203,491
Spruce (pulpmills)	195,568,623
Hemlock	46,545,772
Pine	33,132,807
Hardwood	24,296,554
Total	447,747,247
Shingles	33,619,000
Lath	49,329,090

The spruce used by the pulpmills was reported in cords—345,180 cords. In converting this quantity into feet as reported above (189,503,820 feet), I estimated a cord as equivalent to 549 feet.

By referring to the table showing the product for each year—1890 to 1899—it will be seen that the output for 1899 is much less than that of the preceding year, the sawmills showing a decrease of thirty-one per cent., and the pulpmills, 17 per cent., while in the production of hemlock, pine and hardwood there was little or no change. The decrease in the spruce output may be due to the extreme drought and low water which prevailed in the summer and fall of 1899, during which many mills were shut down. Many of the large pulpmills increased their Canadian purchases of pulpwood, and bought less from the Adirondacks, which accounts for some of the decrease in production. It should be noted, also, that the production for 1898 exceeded that of any other year. The maximum output was then reached, and it is doubtful if it will ever be attained again.

GREAT FOREST OF NORTHERN NEW YORK.

Annual Production.

	Feet.	Feet.
1890.		
Lumber	325,690,634	
Pulpwood	51,956,262	
		377,646,896
1891.		
Lumber	286,710,593	
Pulpwood	69,274,283	
		355,984,876
1892.		
Lumber	406,954,200	
Pulpwood	80,918,537	
		487,872,737
1893.		
Lumber	355,050,528	
Pulpwood	92,135,707	
		447,186,235

	Feet.	Feet.
1894.		
Lumber	288,700,269	
Pulpwood	112,095,918	
		400,796,187
1895.		
Lumber	297,610,161	
Pulpwood	151,891,281	
		449,501,442
1896.		
Lumber	270,215,372	
Pulpwood	159,894,054	
		430,109,426
1897.		
Lumber	284,907,544	
Pulpwood	166,087,872	
		450,995,416
1898.		
Lumber	314,652,289	
Pulpwood	229,581,918	
		544,234,207
1899.		
Lumber	252,178,624	
Pulpwood	195,568,623	
		447,747,247

In the annual reports of the State Forestry Department—1890 to 1898—will be found the tabulated figures showing the product of each mill for that year, the amount of spruce, hemlock, pine and hardwood being stated separately. These annual reports form also a complete directory in which appears the name and location of every sawmill and pulpmill in the State, together with the business address of the firm or individual.

FOREST FIRES IN 1900.

The fires in the Adirondack region did little damage, comparatively, this year; but, in the Catskill district, owing to the dry season there, fires were numerous and, in some instances, quite destructive. In 1899 there were no fires in the Catskills, while in the Adirondacks they occurred to a remarkable extent. This year the conditions were reversed, the Catskill woodlands suffering to a considerable degree, while the Adirondack fires were few and did little damage. No fires were reported this year from Herkimer or Oneida counties; and one only, of small extent, occurred in Hamilton county.

The total area burned over, as compiled from the reports of the firewardens, amounted to 14,893 acres; and the value of the standing timber destroyed, as estimated by the firewardens, aggregated $12,499. It seems proper to mention here that there was an evident tendency on the part of these officials to overestimate both the area and the damage. In addition to the loss of standing timber the reports state that logs, bark and cordwood were consumed which were valued in all at $2,072; also a loss in buildings and fences amounting to $1,843.

A careful synopsis of the reports shows, also, that the number of days worked by the men who were ordered out to fight fire aggregated 3,101 days, representing an expenditure by the towns for wages of $6,300, one-half of which is payable by the State.

One man lost his life while fighting a forest fire in the Catskills—in Greene county. He was surrounded by the fast traveling flames before he was aware of his danger, and was burned to death. This is the second accident of this kind in the Catskills since the Forest Commission was organized, an old man having been burned to

death about twelve years ago, while working at a forest fire near the Kaaterskill Hotel.

The damage to standing timber ($12,499) may seem small as compared with the acreage burned over. In explanation it should be said that most of the fires reported occurred on waste lands, barren plains, berry patches, meadows, or on tracts that had been burned over before, some of them repeatedly. It will be noticed also from the detailed report which follows that few fires occurred in the main forest district; they were mostly in the farming towns adjoining the wilderness. Moreover, the standing timber that was scorched or killed was not necessarily a loss, although so reported; for the owner would immediately cut it and sell it as cordwood, pulpwood or sawlogs. But the timber on the State land, however, cannot " be cut or removed ", even when it is dead and cumbering the ground.

REPORT ON FOREST FIRES FOR 1900.

ADIRONDACK COUNTIES.

Clinton County.

Town.	Date.		Acres burned over.	Standing timber destroyed.	Cause.
Black Brook	May	2	700	$300	Clearing land.
Black Brook	May	17	1,200	800	Unknown.
Peru	June	20	50	115	Unknown.

Essex County.

Town.	Date.		Acres burned over.	Standing timber destroyed.	Cause.
Elizabethtown ...	June	20	400	$750	Campers.
Elizabethtown ...	June	20	250	200	Lumber camp.
Elizabethtown ...	June	21	12	60	Clearing land.
Jay	April	17	3	....	Burning house.
Jay	April	23	4	....	Clearing land.
Wilmington	May	2	20	60	Tobacco smoking.
Willsborough	June	25	3	15	Clearing land.

Franklin County.

Town.	Date.		Acres burned over.	Standing timber destroyed.	Cause.
Altamont	May	14	100	$10	Clearing land.
Franklin	May	13	100	100	Clearing land.
Franklin	May	13	250	175	Unknown.
Franklin	May	14	75	75	Unknown.
Franklin	May	15	60	10	Clearing land.
Franklin	May	24	15	25	Railroad locomotive.
Franklin	May	25	125	25	Incendiary.
Harrietstown	May	14	120	25	Unknown.
Harrietstown	May	27	50	100	Clearing land.
Harrietstown	June	24	50	25	Clearing land.
Harrietstown	June	30	3	......	Burning garbage.

Fulton County.

Caroga	May	15	200	$200	Unknown.
Johnstown	April	25	100	50	Incendiary.
Johnstown	May	24	12	35	Unknown.
Johnstown	May	25	25	75	Unknown.
Johnstown	May	31	80	200	Unknown.
Johnstown	July	2	15	......	Unknown.
Mayfield	April	27	40	50	Tobacco smoking.
Mayfield	Aug.	9	20	25	Unknown.
Mayfield	Aug.	11	40	100	Railroad locomotive.
Mayfield	Sept.	10	10	15	Railroad locomotive.
Mayfield	Oct.	22	10	50	Hunters.
Northampton	Aug.	25	3	15	Railroad locomotive.
Stratford	May	26	50	50	Fishermen.
Stratford	May	27	15	......	Unknown.
Stratford	May	29	20	10	Unknown.

Hamilton County.

Hope	Oct.	5	25	$100	Hunters.

Lewis County.

Croghan	May	3	3	$10	Fishermen.
Croghan	May	5	10	......	Unknown.
Croghan	Aug.	2	5	......	Tobacco smoking.
Diana	April	28	100	10	Unknown.
Grieg	May	26	152	100	Unknown.
Harrisburgh	Aug.	25	12	10	Clearing land.
Lyonsdale	Aug.	7	10	......	Incendiary.

St. Lawrence County.

DeKalb	July	23	18	$15	Children at play.
Hopkinton	May	24	75	10	Railroad locomotive.
Rossie	July	31	10	......	Unknown.

Saratoga County.

Town.	Date.	Acres burned over.	Standing timber destroyed.	Cause.
Ballston	April 26	3	$15	Railroad locomotive.
Ballston	May 7	20	45	Clearing land.
Ballston	May 14	1	......	Railroad locomotive.
Ballston	July 5	1	......	Railroad locomotive.
Ballston	July 20	2	......	Railroad locomotive.
Ballston	Aug. 22	2	5	Railroad locomotive.
Ballston	Sept. 7	15	......	Railroad locomotive.
Ballston	Sept. 18	3	10	Railroad locomotive.
Clifton Park	Aug. 11	50	25	Railroad locomotive.
Edinburgh	July 4	10	......	Fireworks.
Greenfield	May 9	100	300	Incendiary.
Hadley	May 21	80	10	Unknown.
Hadley	Oct. 5	150	150	Unknown.
Providence	Aug. 11	4	......	Incendiary.
Wilton	Sept. 5	100	......	Berry pickers.

Warren County.

Horicon	Sept. 18	35	$10	Bee hunters.
Johnsburgh	May 13	2	......	Hunters.
Johnsburgh	May 26	20	20	Wood choppers.
Johnsburgh	May 30	1	......	Fishermen.
Johnsburgh	June 11	2	......	Incendiary.
Johnsburgh	June 29	2½	2	Berry pickers.
Johnsburgh	June 30	1½	10	Lightning.
Johnsburgh	June 30	8	5	Lightning.
Johnsburgh	Aug. 5	2	5	Fishermen.
Johnsburgh	Aug. 25	5	10	Hunters.
Johnsburgh	Sept. 12	2	......	Clearing land.
Johnsburgh	Sept. 17	1½	......	Campers.
Johnsburgh	Oct. 5	1	......	Hunters.
Luzerne	Oct. 18	20	5	Hunters.
Queensbury	July 17	15	90	Unknown.
Stony Creek	May 7	40	250	Railroad locomotive.
Thurman	May 7	40	10	Unknown.
Thurman	May 29	100	125	Tobacco smoking.

Washington County.

Fort Ann	April 28	15	$5	Clearing land.
Fort Ann	May 2	25	5	Sick tramp.
Fort Ann	May 12	20	......	Lightning.

CATSKILL COUNTIES.

Delaware County.

Davenport	Oct. 11	1	......	Hunters.
Hancock	April 24	200	$200	Railroad locomotive.
Hancock	April 26	600	500	Railroad locomotive.
Hancock	May 1	300	200	Unknown.

Town.	Date.		Acres burned over.	Standing timber destroyed.	Cause.
Hancock	May	1	200	160	Unknown.
Hancock	May	7	125	300	Unknown.
Hancock	May	7	100	250	Unknown.
Hancock	May	28	100	150	Unknown.
Masonville	Aug.	2	75	100	Clearing land.
Roxbury	Aug.	4	40	100	Unknown.
Sidney	Aug.	3	100	400	Clearing land.
Sidney	Aug.	11	30	50	Railroad locomotive.
Tompkins	April	26	200	200	Clearing land.

Greene County.

Cairo	Aug.	5	600	$500	City boarders.
Cairo	Aug.	6	12	50	Tramps.
Cairo	Aug.	9	300	100	City boarders.
Cairo	Sept.	12	150	25	Incendiary.
Hunter	Aug.	10	300	100	Carelessness.
Hunter	Aug.	26	250	100	Tobacco smoking.

Sullivan County.

Bethel	May	7	400	$200	Clearing land.
Bethel	May	8	300	25	Incendiary.
Bethel	May	30	1,000	500	Telephone line.
Delaware	April	19	225	450	Railroad locomotive.
Fremont	April	7	70	......	Unknown.
Forestburgh	May	6	250	20	Fishermen.
Forestburgh	Oct.	20	25	......	Hunters.
Lumberland	April	30	1,100	1,200	Unknown.
Lumberland	May	7	600	500	Unknown.
Rockland	April	4	3	......	Clearing land.
Rockland	April	5	5	......	Railroad locomotive.
Rockland	April	24	200	......	Clearing land.
Rockland	April	26	200	100	Railroad locomotive.
Rockland	April	29	300	200	Unknown.
Rockland	April	30	3	2	Incendiary.
Rockland	May	2	20	50	Railroad locomotive.
Rockland	May	5	200	75	Unknown.
Rockland	May	25	25	......	Incendiary.
Rockland	May	27	15	20	Incendiary.

Ulster County.

Olive	April	29	100	$10	Unknown.
Olive	May	16	50	50	Tobacco smoking.
Shandaken	Aug.	10	20	......	Unknown.
Shawangunk	April	8	400	200	Unknown.
Shawangunk	May	6	100	200	Incendiary.
Shawangunk	May	30	50	100	Incendiary.

Recapitulation.

Number of acres burned over	14,893½
Of which the State owns	762¾
Damage to standing timber	$12,499
Loss in logs, bark and cordwood	2,072
Loss in buildings and fences	1,843
Total number of days worked fighting fire	3,100
Total wages paid for same	$6,300

CAUSES OF FIRES.

Railroad locomotives	21
Clearing land, burning brush, etc	19
Incendiary or wilfulness	13
Hunters	8
Fishermen	5
Tobacco smoking or matches	6
Lightning	3
Campers	2
"City boarders"	2
Tramps	2
Berry pickers	2
Wood choppers	1
Bee hunters	1
Lumber camp	1
Carelessness	1
Telephone linemen	1
Children at play	1
Burning garbage	1
Fireworks, July 4th	1
Burning house	1
Unknown	35
	127

Of the 127 fires here reported it should be noted that forty-seven of them did no damage, most of them having been extinguished before they gained any headway.

The firewardens, for the most part, rendered prompt and efficient service whenever a fire was observed or reported to them. In some instances they instituted prosecutions for violations of the Fire Law, in which the guilty parties were convicted and fined.

If there were more prosecutions for this offense there would be less fires. But it is difficult to get evidence in these cases; and the firewardens dislike to incur the enmity of their neighbors by arresting them for carelessness in the use of fire, or by furnishing evidence

when the prosecution is instituted by some State official. But if there were some pecuniary inducement the firewardens would probably feel more free to commence proceedings against guilty parties. In view of this I would respectfully suggest that it might be well to amend the law so that the firewardens shall be authorized to bring actions before a justice of the peace for any infringement of the law relating to forest or fallow fires, and that the entire penalty shall go to the firewarden. As these officials receive no salary, nor any pay aside from the days' wages paid them for their time while actually engaged in fighting fire, such a provision would enable them to receive some compensation for their services without increasing the expenses of the town. Furthermore, each prosecution would tend strongly to the prevention of carelessness or wilful neglect in the use of fire.

In response to the repeated recommendations of the Commission, the Legislature, at its last session, passed an amendment to the forestry law, by which it made provision for the appointment of a chief firewarden, who should have charge of all matters relating to forest fires, the effective organization of the town and district firewardens, the collection of reports, prosecution of persons who started fires illegally, and the supervision of the accounts against the State as rendered by the various towns. As this amendment was not passed until the close of the session, the spring fires had occurred before any appointment was made. Mr. Lester S. Emmons who was selected by the Board to fill this important position commenced work in June, since which time he has accomplished much in the way of perfecting the organization of the force of firewardens. He has visited the various towns in which vacancies had occurred and secured competent, desirable men to fill these places, a task somewhat difficult as the position offers no inducements. He has also arranged with the firewardens of the larger forest towns

for a division of the territory into districts of suitable size and location, and, also, for the appointment of good men to act as district firewardens. It is confidently expected that the good results of his work will be apparent in a marked decrease in both the number and area of forest fires.

As there are 758 town and district firewardens in the Adirondack and Catskill regions, it is evident that the proper organization and supervision of this large force of officials necessitates a large amount of work on the part of the Chief Firewarden.

TRESPASSES AND TIMBER THIEVES.

During the fiscal year ending October 1, 1900, forty-six different actions for timber stealing, including some unintentional trespasses, were successfully prosecuted and the penalties collected. These fines amounted in the aggregate to $2,207.76. In addition to this sum $378.82 was received for the sale of logs which were seized and sold, the timber having been stolen from State lands. The fines imposed varied from $10 to $208.10; and in one case of timber cutting, which occurred on Township 17, Hamilton county, the sum of $550 was paid in settlement of the trespass.

Some of the amounts collected were the result of prosecutions commenced before the beginning of the fiscal year; and, again, several prosecutions are now pending, in which the penalties have not yet been collected.

The most of these trespasses occurred along the borders of the forest, and were due to the petty thieving of a class of men who resort to this method of obtaining money whenever they think they can do so without detection. During the last year no timber cutting has been done on State lands by any of the lumbermen, except in one instance in which the defendant claimed that there were no lines showing the State boundary. He was fined, however, an

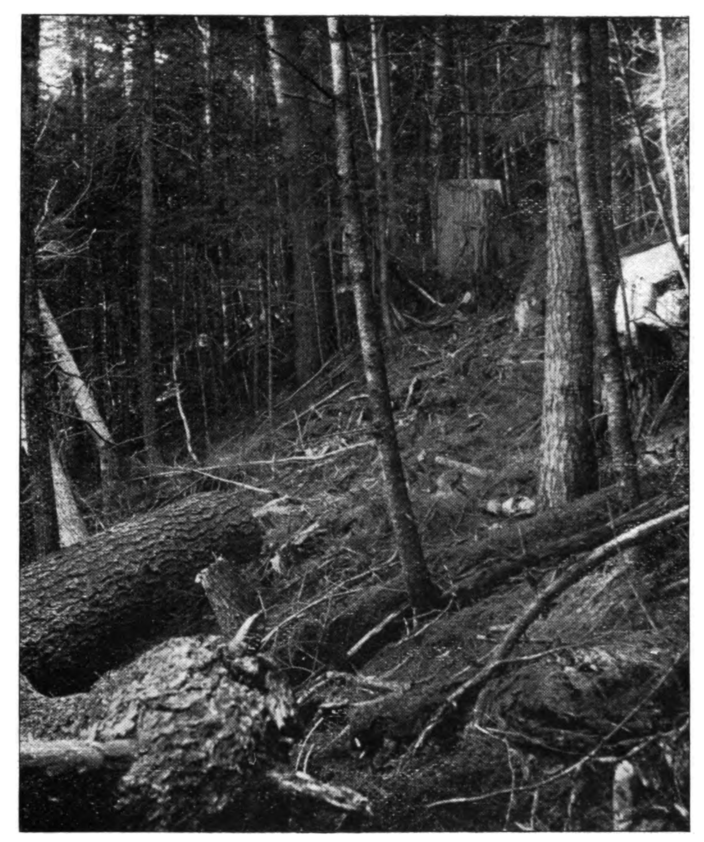
amount equivalent to three times the value of the timber taken, as it was his duty to know where his own line ran, even if the State boundary was not marked. Very little trespassing in the way of timber cutting is done in the main forest, as there is no resident population there; and, the lumbermen of late years have been very careful to have their lines marked by competent surveyors, thus avoiding trouble with the State.

In some instances trespasses are committed by persons who claim title to land, and when prosecuted they put in a defense accordingly; but in each of these cases the State was able to prove its title clearly, upon which the usual penalties were imposed. The greater part of the timber stealing occurs along the southern boundary of Hamilton and Herkimer counties. One bad feature of the timber cutting in that locality is that the thieves destroy a large amount of timber in addition to that which they remove. As a rule they take the choice butt logs only—the "fiddle butts" as they are termed—leaving the rest of the trees in the woods to decay, and increasing the danger from fire. These fiddle butts, being composed largely of clear stuff, free from knots, are sawed into five-eighths thickness, and shipped to the factories which make sounding boards for the piano trade. The thieves also take some choice hardwood butts, taking one log as usual and leaving the rest of the tree on the ground.

Another class of thieves take pine timber which they use in making shaved shingles. They select the largest and most valuable trees in the forest, and cut out the butt logs. I submit herewith some photographs illustrating the character of their work. This trespass was discovered by Forester Bryant, who also measured the stumps and estimated the amount of timber taken—which, in this case, amounted to 26,934 feet. Not all of it was removed, as the parties were discovered soon after they commenced operations.



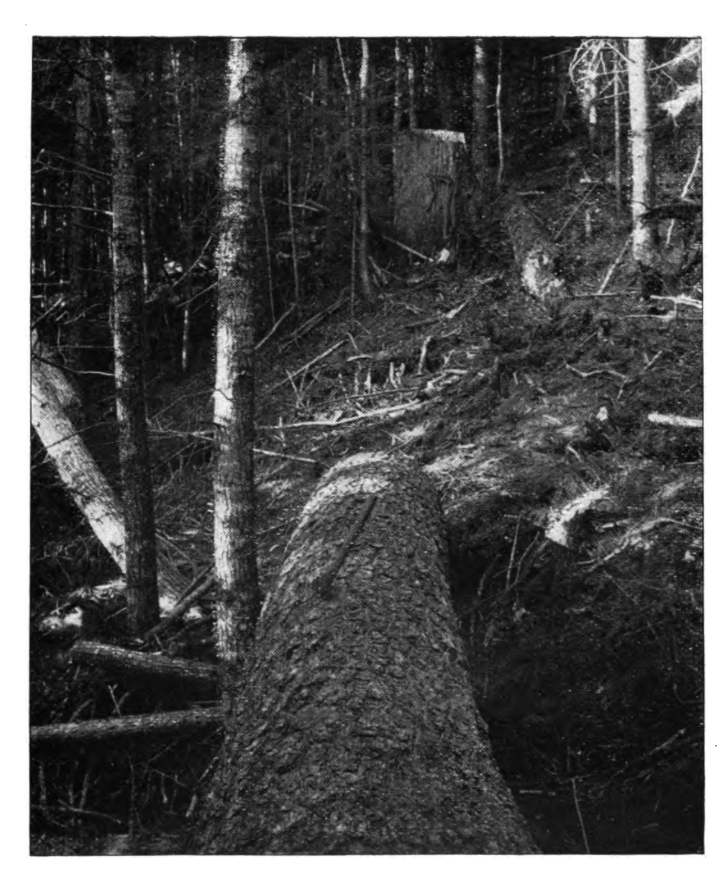
Timber stealing; Twp. 40 (Raquette Lake). Section of large pine taken, leaving the rest of the tree to decay on the ground.



Trespass on State Preserve. Large tree felled by timber thieves. The butt log only has been hauled away.



Part of a tree stolen, and one large pine "notched" by the thieves to see whether it was "shaky." The sliding calipers used by the forester in measuring up the trespass appears on the end of the log; also an axe, left by the thieves, sticking in the butt.



Pine butt removed and made into shingles at the foot of the slope.

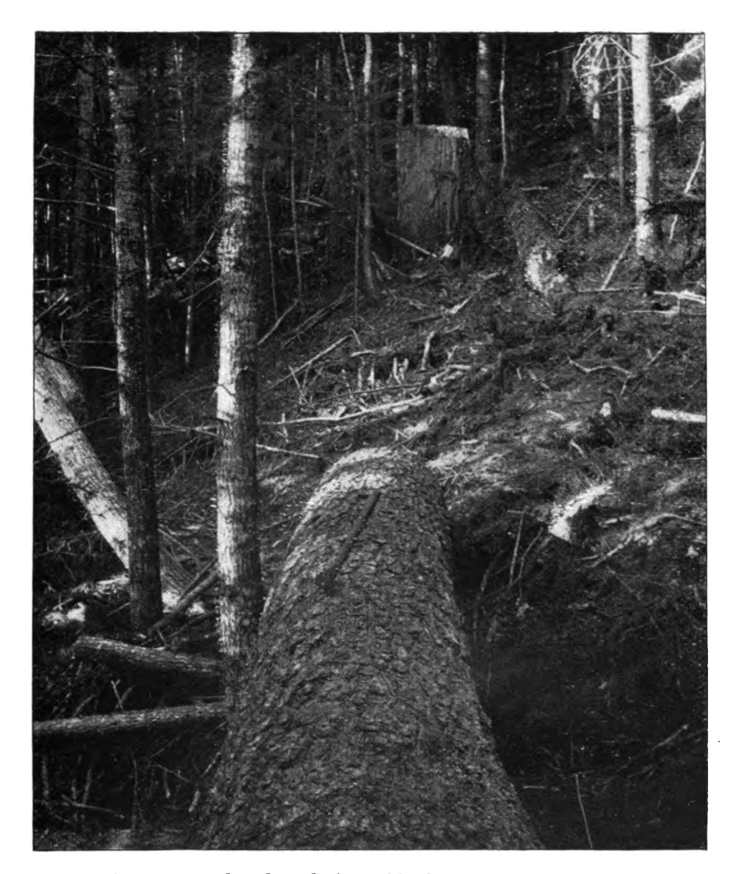


Shaved shingles made out of State timber.





...h or "horse" on which the thieves shave shingles, with stumps and logs close by.



Pine butt removed and made into shingles at the foot of the slope.

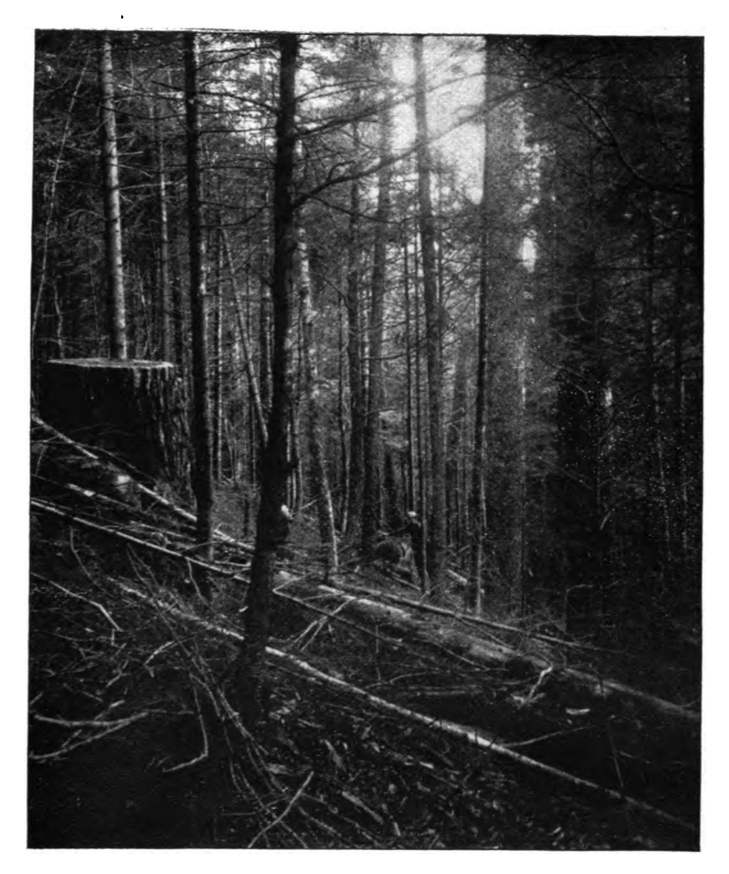


Shaved shingles made out of State timber.

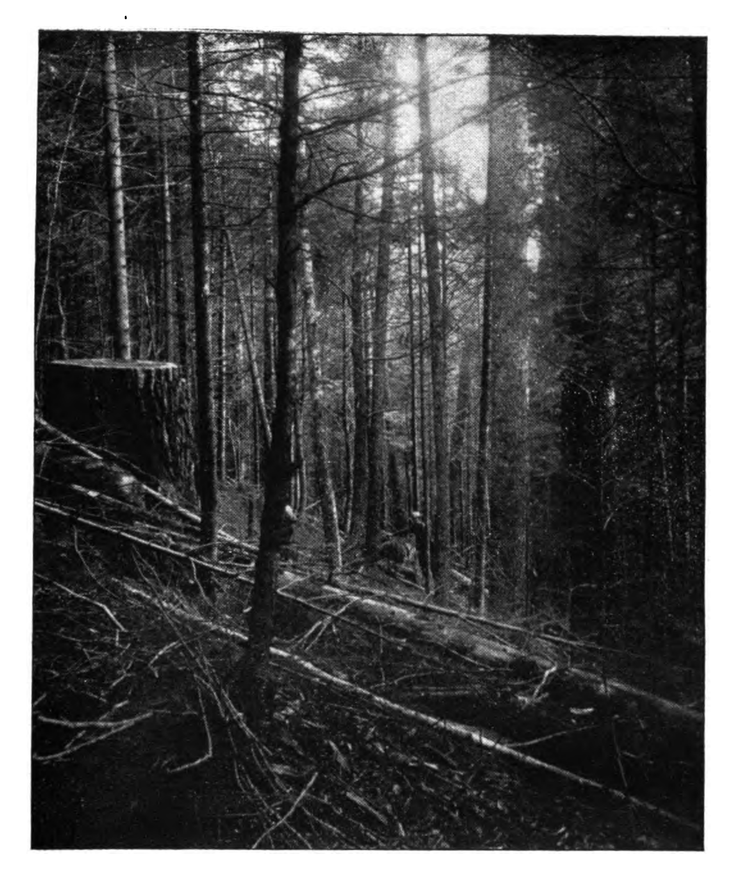


Shaving bench or "horse" on which the thieves shave shingles, with stumps and logs close by.





A thinning in the primeval forest made by timber thieves. State land.



A thinning in the primeval forest made by timber thieves. State land.

The foresters have shown a commendable activity and efficiency in arresting many of these depredators, but as each forester has an entire county to look after it follows that as soon as he has gone the thieves resume work. This condition of affairs will necessarily go on until the Legislature makes provision for the continuous patroling of each locality. I would therefore respectfully renew the recommendation which I made in my report of last year to the Commission, and urge the importance of amending the forestry law so that provision may be made for a force of at least thirty-five patrols or rangers, who should be required to live in the forest, and on the township or district assigned to them. If this is done there will be no more timber stealing nor violation of the game law on State lands. At present there are only three foresters or rangers connected with the forestry department of this State; and one of these is a surveyor, who is necessarily employed on other work. We are accordingly obliged to depend upon the services of the fish and game protectors. The latter are active, efficient men, but there are only six of them living within the Adirondack Park. They reside in some village, and much of their time is necessarily occupied in the prosecution of suits for violation of the game law.

The most important benefit to be derived from a well organized force of patrols would be in the prevention of forest fires. True, we have firewardens in each town; but their duties are confined to the extinguishing of fires. Their work does not commence until after a fire has started; the work of the patrol is directed to the prevention of fires. The best way to fight fires is to have no fires. A patrol would know of each hunter, fisherman, tourist, or picnic party that came on his township. He would follow them, caution them about carelessness in this respect, and see that their camp or

coffee fires were extinguished when they moved on. He would also be in a good position to obtain the necessary evidence for a prosecution, if these wandering parties violated the provisions of the law relating to the use of fire in the woods.

During the dry season of 1899 there were 327 fires in the Adirondacks; but none of these occurred on the private preserves, although these preserves include one-third of our northern forests. Their exemption was due to the fact that their lands were constantly patrolled. The preserves employed ninety-eight patrols in all; the State did not employ one.

In addition to the forestry and police work carried on by the Department there are numerous suits involving the litigation of titles to lands in the preserve. It is a matter of congratulation that the Commission has been uniformly successful in these cases. In one important suit growing out of the cutting of timber on the preserve, the defendant set up a claim of title which was based upon a certificate from a county treasurer's sale. On the first trial of this case a verdict was given against the prosecution, the court holding that the defendant's title, which was obtained from the county treasurer's sale, was a valid one, although the State held title from a tax sale subsequently made by the State Comptroller. As this decision would affect unfavorably the State's ownership to a large amount of land in the Forest Preserve, an appeal was taken, and I have the pleasure of announcing that recently we received notice that the Appellate Court had reversed the decision of the lower court.

I would also mention the important decision made by the United States Supreme Court, in the suit of Benton Turner v. The State of New York, in which it affirmed the constitutionality of the law of 1885. This law makes legal and regular all the tax sales under which the State holds title to lands in the Forest Preserve.

I take pleasure also in mentioning that we have received a communication from the office of the Paris Exposition, conveying the information that the Forest, Fish and Game Commission of this State received a gold medal for the forestry exhibit sent there one year ago. This exhibit consists of six large frames, each containing thirty specimens—or 180 in all—of the commercial woods of this State. There were eighty-four species represented, two or more specimens being exhibited of each, showing different kinds of finish. This collection is a valuable one. It is not only instructive, but it possesses interest for all manufacturers who handle our native woods in the course of their business. I would respectfully suggest that when the exhibit is returned to this country that it be set up again, and placed on permanent exhibition in some suitable spot in the corridors of the capitol.

I would further report that in addition to the ordinary details of office work we are now engaged in the preparation of a new edition of the Land List, showing the location, lot number, and acreage of the various parcels of land—over 5,000 in number—forming the Forest Preserve. As this schedule forms the basis of all our forestry and real estate work, its value and necessity must be plainly evident. The preparation of this work has been entrusted to Mr. A. B. Strough of the office force, whose ability as a statistician, and experience in the preparation of similar statistics, insures the accuracy of this extensive compilation.

Owing to the large accession of lands through the purchase of the Forest Preserve Board, and sale of bonded lands by the State Engineer and Surveyor, a new edition of our Adirondack map became necessary. Much time has accordingly been devoted to its preparation and the incorporation of the data derived from the recently issued sheets of the United States Geological Survey.

Through information obtained from the latter source it is hoped in time to make this map substantially perfect. As no other one has been published showing the landed allotment of the Adirondack counties its great value has been conceded by everyone interested in that region—land holders, surveyors, lawyers, tax assessors, lumbermen, tourists and owners of private preserves. Owing to the large number of changes made necessary by the information received from the United States Geological Survey, extensive changes in the stone had to be made by the engravers, which has delayed its publication. But I am in receipt of a letter from Messrs. Bien & Co., of New York, who are doing this work, that the proof sheets will be ready within a few days.

ADIRONDACK DEER.

Although the protection of game is not strictly within the province of my department, I would say that for several years I have made the Adirondack deer a subject of observation and study. I have omitted no opportunity to gather reliable statistics bearing on the matter, and so I take pleasure in submitting here some facts and figures for the information of your Board. Through an arrangement made with the American and National Express companies I am enabled to state the exact number of deer shipped out of the Adirondack region during the open season of 1900. These shipments represent only a small proportion of the deer killed during that period. What that proportion is, it would be difficult to say with any degree of accuracy, owing to the large number killed by residents and men in the logging camps. The sportsmen also consume some venison while in camp; and many of the hunters who live near the edge of the forest bring out their deer in wagons, some of them carting their game many miles. If I were to venture

an estimate, I would say that for each deer reported here in the express companies' returns, at least four others were killed. The record of shipments as taken from the way-bills of the express companies is as follows:

SHIPMENTS OF DEER FROM THE ADIRONDACK REGION BY THE AMERICAN EXPRESS COMPANY IN 1900.

Mohawk and Malone Railroad.

Office.	Carcasses.	Saddles.	Heads.
Beaver River	84	1	2
Big Moose	27	6	5
Brandreth Lake	....	1	....
Childwold	33	....	3
Clear Water	58	10	1
Floodwood	30	....	....
Forestport	29	4	2
Fulton Chain	39	7	....
Hinckley	1	....	....
Lake Clear	2	....	....
Lake Placid	4	....	7
Little Rapids	1	....	....
Long Lake West	49	....	....
Loon Lake	6	....	....
McKeever	8	....	....
Minnehaha	1	....	....
Mountain View	5	....	1
Nehasane	....	....	9
Nelson Lake	2	....	....
Otter Lake	4	....	....
Owl's Head	2	....	....
Paul Smith's	9	1	1
Piercefield	29	2	2
Poland	11	....	1
Rainbow Lake	1	....	....
Saranac Inn	4	2	6
Saranac Lake	1	....	....
Tupper Lake Junction	56	3	6
White Lake Corners	3	1	....
Wood's Lake	14	....	....
	513	38	46

New York and Ottawa Railroad.

Office.	Carcasses.	Saddles.	Heads.
Bay Pond	....	....	5
Brandon	4	....	....
Derrick	14	....	3
Kildare	8	2	....
Madawaska	8	1	1
Santa Clara	8	1	....
Spring Cove	11	....	....
St. Regis Falls	6	....	6
Tupper Lake	1	....	....
	60	4	15

Ogdensburg and Lake Champlain Railroad.

Knapp's	1	....	....
Lawrence	....	1	....
Malone	6	1	2
	7	2	2

Fonda, Gloversville and Johnstown Railroad.

Gloversville	4	....	....
Johnstown	3	....	....
Northville	54	13	10
	61	13	10

Little Falls and Dolgeville Railroad.

Dolgeville	7	....	....

New York Central and Hudson River Railroad.

Fonda	4	1	....

Rome, Watertown and Ogdensburg Railroad.

Antwerp	1	....	....
Canton	4	1	....
DeKalb Junction	5	1	1
Edwards	6	....	1
Potsdam	24	....	....
Watertown	1	....	....
	41	2	2

Utica and Black River Railroad.

Office.	Carcasses	Saddles.	Heads.
Alder Creek	5	....	....
Benson Mines	35	4	....
Boonville	6	....	....
Carthage	2	....	....
Castorland	3	1	....
Glenfield	28	....	....
Harrisville	32	2	....
Jayville	1	....	....
Lowville	4	1	....
Lyons Falls	3	....	....
Natural Bridge	3	....	....
Newton Falls	25	3	3
Oswegatchie	26	....	....
Port Leyden	6	....	....
Prospect	34	1	....
Remsen	2	....	....
Richville	1	....	....
	216	12	3

Shipments of Deer from the Adirondack Region by the National Express Company in 1900.

Delaware and Hudson Railroad.

Office.	Carcasses.	Saddles.	Heads.
Caldwell	3	....	1
Crown Point	1	....	2
The Glen	1	....	....
Loon Lake	1	....	....
North Creek	82	17	....
Port Henry	5	....	5
Riverside	6	....	4
Saranac Lake	1	....	....
Stony Creek	6	....	....
Ticonderoga	1	....	5
Westport	4	....	....
	111	17	17

Recapitulation.

Railroad.	Carcasses.	Saddles.	Heads.
M. & M.	513	38	46
N. Y. & O.	60	4	15
O. & L. C.	7	2	2
F., J. & G.	61	13	10
L., F. & D.	7	....	....
N. Y. C. & H. R.	4	1	....
R., W. & O.	41	2	2
U. & B. R.	216	12	3
D. & H.	111	17	17
	1,020	89	95

It may be that in some of these shipments a saddle and head belonged to the same animal, and that the total number should be decreased accordingly. As most of the saddles were from does—the hunters seldom shipping out a doe's carcass—and all the heads were from bucks, the possible duplication referred to did not occur probably to any great extent. But, if all the saddles are deducted, it follows that at least 1,109 deer were killed and shipped.

The number killed which were *not* shipped out by rail involves estimates or guesswork which had better be left for each one to determine in accordance with his own experience or observation in these matters. For the information of those who may wish to make such estimates I would say that in 1895 I arranged with a competent person in each locality to ascertain the number of deer killed that season in his immediate vicinity, specifying the district by definite boundaries to avoid any duplication in the returns. I received, in reply, reports from 247 correspondents, covering the entire northern forest, showing that 4,903 were killed during the open season. While these figures may not have included all, they showed conclusively that at least this many were killed, not including the ones illegally shot before the season opened.

The statement that 5,000 deer are killed each year in the Adirondack forests may occasion some surprise among sportsmen who have not looked closely into this matter. But in Maine last year 4,529 carcasses of deer—not including heads and saddles—were shipped out of the woods over the lines of the Bangor and Aroostook, and Maine Central railroads; and it is estimated by competent authorities that over 18,000 deer are killed annually in the Maine forests.

The question arises here naturally as to how many deer there are in the Adirondack woods. This cannot be answered definitely, or even approximately. But if there are 5,000 killed each season, it would indicate that there must be at least 30,000 in order to furnish this annual supply. As there are about 6,000 square miles of forest in that entire region, with its outlying woodlands, this estimate would require only five deer to the square mile, on an average, to make it good. True, there are some localities in the Adirondacks in which there is not one deer to the square mile; but, on the other hand, there are some in which there are many more than five to that area. Given this unit of measure each one is free to make his own estimate as to the number of deer in our northern forests.

Right here the question may arise whether, owing to the use of hounds and jack lights, more deer were killed under the old law than under the present one. This can be answered definitely so far as the shipments of the express companies are an indication. The number of deer brought out of the woods by rail in 1896—the last year in which hounds were allowed—as compared with the shipments this last season, give the following result:

Year.	Carcasses.	Saddles.	Heads.	Total.
1896	849	139	100	1,088
1900	1,020	89	95	1,204

This indicates that more deer are now killed by still hunting than when hounding and jacking were permitted.

A large part of the venison slaughtered this season, as shown by the date of the shipment, was obtained on the tracking snow which fell during the last week of the season. Prior to that the still hunting was difficult work owing to the dense foliage which was late in falling this year, and the dryness and rustling of the leaves under foot.

Prior to this season no albinos or white deer have been killed in the Adirondacks for a great many years. Occasionally, at long intervals, one has been reported as seen, and as this happened each time during the close season it was allowed to go unharmed. But this year, the hunters succeeded in killing two of this rare variety.

One of them, included in the shipment from Port Henry, was shot near North Hudson by Mr. John Greenough. This animal, a two-year-old buck, is described by those who saw it as being perfectly white, with pink ears. Another noticeable peculiarity was its very short legs.

The other one was shot near the Boreas Ponds by Mr. Clark Cox, a gamekeeper on Mr. George R. Finch's preserve. It was a young buck with pink eyes and a spotless coat of white.

The weights of the various carcasses as given in the shipping bills indicate that our Adirondack deer are larger and heavier than the same species in Michigan and the Northwest, judging from the description of the latter as given by Judge Caton, a well known authority on this subject.* It would appear, also, from other sources of information that our deer will compare favorably in weight and size with those in Maine and Canada. I noted thirty-

*The Antelope and Deer of America, by John Dean Caton, LL.D.: New York. Forest and Stream Publishing Company; Second Edition, 1881.



two shipments in which the dressed weights ranged from 200 to 235 pounds. Under the rule for determining the live weight by adding one-fourth to the dressed weight, these deer when shot weighed from 250 to 294 pounds, without making allowance for what may have been lost by drying out while they were hanging "on the pole" in camp. The rule referred to will always enable one to determine the live weight closely. It is based on records kept for several years at Lewey Lake and at Meacham Lake. At each of these places there were scales at the boat landing where all the deer were brought in, which enabled the hunters to weigh the carcasses before and after dressing. I have seen the rule tested quite often, and always with a satisfactory result, the variations being very slight.

In conclusion I wish to acknowledge here the kindly consideration which the Board has accorded at all times to my various suggestions or requests; also, the cordial support and co-operation which I have received from each official connected with the Commission.

All of which is respectfully submitted.

WILLIAM F. FOX,

Superintendent State Forests.

The St. Lawrence Reservation.

The St. Lawrence Reservation was authorized pursuant to provisions of chapter 802, Laws of 1896.

This act provides that all that part of the River St. Lawrence, lying and being within the State, with the islands therein, and such lands along the shore thereof, as are now owned by or shall be hereafter acquired by the State, is hereby constituted an International Park, which shall be known as the St. Lawrence Reservation.

By the same act the reservation is placed in charge of the Commission.

Chapter 273, Laws of 1897, appropriated $30,000, and authorized the Commission to purchase lands, and carry out the objects of the law.

The following are the lands purchased, the approximate acreage of each, and price paid:

Burham's Point, near Cape Vincent, about 4.37 acres, $500.

Cedar Point, between Cape Vincent and Clayton, about 13.9 acres, $1,400.

Canoe Point and Picnic Point, Eel Bay, 70 acres, $4,200.

Watterson's Point, Canadian side of Well's Island, about 6.32 acres, $700.

Mary Island, opposite Alexandria Bay, about 12½ acres, $5,000.

Kring's Point, near entrance to Goose Bay, about 35.35 acres, $2,300.

One-half Cedar Island, near Chippewa Bay, about 10.11 acres, $3,000.

One-half Lotus Island, nine miles below Ogdensburg, about 20 acres, $4,500.

DeWolf Point, Lake of the Isles, about 10.12 acres, $500.

There were no docks at any of these places at the time of their purchase, except on Lotus Island, where there was an old dock and a small cottage. Substantial docks of a suitable size for steamboats to land at have since been constructed at Cedar Island, Kring's Point, Mary Island, DeWolf Point, Watterson's Point, Canoe Point, Picnic Point and at Cedar Point. Small docks for skiff landings have also been constructed at places in the reservation where deemed necessary.

The dock at Lotus Island has not been used during the past season on account of its dangerous condition. The State Engineer has prepared a plan for its rebuilding, but no action has yet been taken by the Commission.

The construction of nine open pavilions was contracted for and they were located by the Fisheries, Game and Forest Commission in 1899, at an expense of $4,500. These pavilions were completed this year, were inspected and accepted by the State Architect, and have been paid for. They are located at Burnham's Point, Cedar Point, Canoe Point and Picnic Point in Eel Bay, Watterson's Point, Mary Island, Kring's Point, Cedar Island and DeWolf's Point.

It has been the custom of campers and excursionists visiting State lands to build fires to make coffee and cook their meals. They have not always used proper care in putting out their fire, and in several instances considerable damage has resulted from the fire spreading to the adjacent timber and buildings. The Forest, Fish and Game Commission has this year built fifteen small fire ovens, at an average cost of about twelve dollars ($12) each, on State lands most frequented. The experiment has proved a popular one; the ovens

have been extensively used, and in consequence no fires have occurred the past season.

In the last few years the number of small craft running on the St. Lawrence river in the summer season, has greatly increased. Many cottagers now own and manage their own naphtha or electric launches. These small boats run in shallow waters, and accidents are not infrequent. The commissioners in June last purchased fifty small buoys, at an expense of $230, and placed them at the disposal of responsible cottage owners, taking their receipt therefor, upon an agreement that the buoys should be properly cared for, put into the water at the opening of each season to mark a hidden rock or shoal, in shallow waters, and taken up again at the close of the season. Many requests for buoys have been granted, and the policy adopted by the Commission in this regard is highly commended.

The growing popularity of the Thousand Islands as a summer resort is unquestioned, and the policy of the State to provide points of land and islands for use of the public is much appreciated by thousands of visitors.

The sum available in the St. Lawrence Reservation fund at the beginning of the present fiscal year, October 1, 1900, was $5,201.09, a sum more than sufficient to meet all requirements. For the coming fiscal year a small appropriation should be placed at the disposal of the Commission, for properly superintending and maintaining the lands and buildings, and making such repairs as are found necessary from time to time.

Report of the State Fish Culturist.

To the Forest, Fish and Game Commission:

GENTLEMEN.—In submitting my report for the year ending September 30, 1900, the fish distribution is given in detail, each separate plant, the kind of fish and where the fish were planted. Until the 1st of May last, the application books, in which the fish distribution is recorded, were kept at the Caledonia Hatchery by the Superintendent of Hatcheries, an office now abolished, and since that time they have been in the office of the Commission at the capitol, in Albany. When the books were received in Albany, the distribution of whitefish and tomcod was completed, and the total distribution for these two fishes was recorded as 40,175,000 whitefish fry, and 42,000,000 of tomcod. Thinking that there must be an error in the figures, I procured from each hatchery a statement, by the foreman, of the number of whitefish eggs taken, as follows:

From the Adirondack Hatchery..................	18,062,000
From Canandaigua Lake........................	5,934,000
From Hemlock Lake...........................	3,515,000
From the United States Fish Commission.........	10,000,000
Total	37,511,000

The loss in hatching, as reported by the different foremen, amounted to 6,070,500, which left 31,440,000 of fry to be planted.

That this statement was practically correct, I am convinced from the report of the then Superintendent of Hatcheries, dated January 8th, which states:

The whitefish take of eggs was as follows:

Little Clear Lake (which is Adirondack Hatchery).	17,241,000
Canandaigua Lake	6,720,000
Hemlock	3,948,000
Received from the United States Fish Commission.	9,000,000
Total	36,909,000

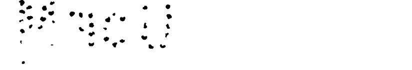
If the United States eggs had been put down in the report of the Superintendent of Hatcheries at ten millions, the two statements would have been practically the same, and would have made the number of fry about thirty-one millions, as I reported to you in a monthly report.

As to the tomcod eggs, the foreman at Cold Spring Harbor, reported that he had planted but thirty-two millions of fry, and he gives the plants in detail.

Another report of the then Superintendent of Hatcheries, of the output of fish for the month of February, states:

"The distribution of tomcod fry for the year, from Cold Spring Harbor Hatchery, closed on February 17th; total plant forty-two millions; gain over last year, 4,000,000." "Last year" would be 1899, when the total plant was recorded as thirty-eight millions. The detailed distribution appended, taken from the application book, apparently records a distribution of ten million more tomcods than were hatched, and nearly nine million more whitefish than there were eggs.

During the last session of the Legislature there was an appropriation of $1,500 for building fishways in the Salmon River, near Pulaski. This matter was referred to me with power. My report to





the Board, in September, in regard to the fishways, may very properly be quoted here:

"Upon visiting the dams in Salmon River, at Pulaski, I made rough sketches and measurements, and submitted them to Mr. H. von Bayer, the engineer and architect of the United States Fish Commission. Mr. von Bayer is the engineer who improved the Cail system of fishways, recommended by the United States Fish Commission, and in use in several European countries. None of these fishways has been erected in this country, and as they are the cheapest fishway that can be constructed, I was very anxious to have at least one of them built under the appropriation for fishways in the Salmon River. United States Fish Commissioner Bowers kindly granted a leave of absence to Mr. von Bayer who visited the river with me, and is now preparing plans for the fish passes over the four dams. We had an interview with a builder residing at Pulaski, and I am satisfied that the four dams can have suitable passes built in them, the cost to come within the amount appropriated. The lowermost dam of the four will have a Cail fishway; the others will have fish chutes covered and protected from ice, the insides having arms to retard the flow of water. I expect there will be a sufficient amount of money left to pay Mr. von Bayer for his expenses, and possibly a small sum for his services. If not, however, the United States Fish Commissioner will donate his services."

Mr. von Bayer prepared plans and specifications, the State Engineer's Department prepared estimates of materials, and the contract was let for the fishway on the lowermost dam, for $588.33, to G. W. White, of Pulaski. Mr. White's bid for the fish chutes in dams 2, 3 and 4 was above the estimate, and was rejected. Material was brought to the ground, lumber, timber and iron, but high water

came on and he was obliged to cease work. It is still believed that during low water, in the coming summer, the four fishways can be completed within the appropriation.

During the summer the Commission made an exhibit of fish at the State Fair, for which the sum of $150 was set aside, and it was so instructive and entertaining to the vast number of visitors that I believe it would be most desirable to enlarge the exhibit another year, provided space can be obtained for the purpose.

Early in the summer it was reported that acid factories in Sullivan county were running acids into the trout streams in quantities injurious to the fish. The foreman at Beaver Kill Hatchery was sent to Spring Brook, the point complained of, and investigated. He dipped out some of the water, placed in it a six-inch trout, and the fish died in four minutes. He found four men prepared to testify that they had found dead fish in Spring Brook every week for a month. A sample of the water was sent to this office. The proprietor of the acid works learned that an investigation was afoot and immediately removed the poisonous acids from the stream, by erecting vats sufficiently distant from the shore of the brook to prevent its contamination by seepage.

The foreman was directed to make an investigation of other factories of this kind and to make a report, which was submitted to the Commission in September, and which may be summed up as follows:

Nine acid or chemical works were visited. One of them was found to be running acids into a trout brook, and the refuse was very promptly removed. Another one wished a little time in order to arrange for running the acid into tanks on the shore, and in the meantime closed the works. The others were found not to be injuring the fish. One of them had been fined the previous year.

There has been no further complaint, and from the foreman's reports I believe that none of the acid factories visited have renewed the methods so destructive of fish life.

A number of applications have been received asking for permits to take fish with nets, for scientific purposes. None of these requests has been granted. I would recommend that the Board urge upon the Legislature the necessity of enacting a law that would give the Commission power to grant such permits, when the request comes from a scientific body or from an individual, endorsed by a scientific body.

In my monthly report of August, I said:

"A bill was introduced in the Legislature to give this Commission power to close streams for a term of years not exceeding five, when such streams were planted with fish, for the purpose of stocking or re-stocking them. This is a provision in the laws of adjoining states, as the Fish Commission is supposed to be a body better informed as to the needs of closing streams to re-populate them with fish, than any other body of men. The bill was passed in an amended form and is now a law, the amendment, however, killing the force of the bill, as it requires a request on the part of a majority of the town board of any town, before the Commission has the power to close any water. Until this law is amended, giving the Commission power to close streams without a petition from a town board, I would recommend that no more yearling fish be raised at the State hatcheries, and for this reason; yearling fish are, of necessity, planted just before or about the time of the opening of the fishing season in the spring. About that time they are twelve months old. Nearly all trout reared by the State are more than six inches long at twelve months of age. If the Commission had power to close streams in which year-

ling trout were planted in the spring, these trout would spawn in the fall following or at eighteen months of age, and do much to keep a fresh stock of fish in the stream by natural processes. Under the operation of the present law yearling trout are planted and almost at once they are taken out by fishermen, who can take them legally over six inches in length. One or two instances this past spring have come under my observation, and I am satisfied that three plantings of yearling fish, some of them nine inches in length, were all practically caught by fishermen within a few weeks after the yearlings were planted, and therefor, in my opinion, it would be economy on the part of the State to plant fish no older than fingerlings, that is, eight months old, as quite as many fingerlings would survive as now survive of yearlings, and the State would be spared the expense of carrying them through the winter and feeding them."

The Commission adopted my recommendation and yearling fish are no longer reared. I believe it would add much to the future of fishing in the State if the Commission had power to close streams without resorting to a petition from a town board.

I desire to repeat, also, what I said in the same report in regard to the Fishway Law:

"The Fishway Law is in too many instances not complied with by those who erect dams on streams in this State. Section 208 of the Forest, Fish and Game Law provides: 'Before the construction of a dam is commenced on any stream more than six miles long, inhabited by fish protected by this act, the plan thereof and a statement of the name, length and location of the stream shall be given to the Commission by the person, or if by public authority, by the official directing or permitting the work.' * * * Unless an example is made of someone who erects a dam without complying

with the law, I fear that the illegal dam building will continue for some time to come."

In August the Commission decided to rebuild the ponds at Cold Spring Harbor, used for rearing young fish. They were constructed of wood and were badly decayed, and eels had found their way through the supply pipe and grown to considerable size underneath the flooring. This was found when the ponds were torn out to rebuild. The ponds were well under way before the close of the fiscal year. They are built of stone and cement, and are believed to be the best fingerling ponds at any of the State hatcheries. They have been enlarged considerably, so that double the number of fingerling fish can be reared now that could be reared in the old races.

At Bath the rearing ponds were increased, rather more than doubling the capacity for rearing fingerling fish, and all without adding to the water supply, except a small spring which was taken in at the upper end of the property. Reports on these rearing ponds and races have been made in detail to the Commission, and the expenditure in connection therewith will be found in the financial statement.

There was some loss of fish this year, as there was last, at the Adirondack Hatchery. This was owing, in part, to the high temperature of the water taken from Little Clear Pond. A portion of the water supply comes from the surface and a portion comes from the bottom of the lake. The water is mixed in a receiving tank just above the hatchery. The output of fish from this hatchery could be considerably increased if one of the pipes now taking the supply from the surface at the outlet, could be continued up the lake parallel to the pipe now feeding from the depth of the lake near its middle.

The output of fish will probably, another year, show an increase at Caledonia, Cold Spring Harbor, Pleasant Valley and Saranac, in consequence of improvements now under way.

The Rockland Hatchery can be used only for hatching fish, as no stock fish can be carried there on account of high temperature of the water, nor can rearing ponds be maintained, for the same reason. This hatchery can be moved, as I reported to this Commission in a monthly report, as follows:

"Since the last meeting I have examined a number of springs in Sullivan and Rockland counties, and find that eight miles from Rockland, on the line of the New York, Ontario and Western Railroad, and three-quarters of a mile from the railroad, there is an abundant supply of spring water of a temperature of about forty-six degrees, to which may be added the water from a stream with a surface temperature of 57 degrees, that together will make as fine a water supply as there is at any of the hatcheries now operated. The spring water will probably fill pipes to amount to 14 inches in diameter. The brook will probably fill a pipe six or eight inches in diameter, and when I visited the springs they were at their worst. The Beaver Kill, into which these streams flow, was almost dry, and the brooks and streams in all that region lower than ever before.

"An estimate has been made of the cost of moving the hatchery, and Mr. William Thompson, a builder of considerable experience will undertake to move the hatchery, putting in new lumber that may be needed, or that is broken or defaced, and putting the building on a new foundation, for $2,500. The site for the hatchery in its new location will control all the water supply, and can be purchased for not to exceed $500. The present hatchery site cost $650, as I recollect the amount, and probably could be disposed of for a portion of the purchase price."

The Sacandaga Hatchery, at Speculator, is badly located and should be, in the near future, abandoned. For this reason no improvements are made more than to keep the property in repair. It is twenty-eight miles from a railroad and difficult to secure stock fish, and also difficult to secure eggs from wild fish. At some seasons the water is cold enough to carry a few stock trout; at others, it is not.

The hatchery at Old Forge is going from bad to worse from year to year, and was a subject for special mention in one of my monthly reports. In brief, in 1895 nearly 600,000 trout eggs were taken, and this year only 35,000. Stock fish have decreased from 1,300 in 1895 to about 100 in 1900.

During the year I recommend that no small mouth black bass should be distributed, as the law does not cover their breeding season. It is a fish that is not cultivated artificially, in like manner with the trout and shad, and there are but two methods of furnishing fish to applicants; one, to take the adult fish from one water to plant in another, and the other to confine the adult fish and permit them to spawn naturally, then remove the parent bass, rear the fry to fingerlings and plant them. There is scarcely any black bass water but would recuperate of itself, provided it was suitable for the fish, if the fish were protected during the actual spawning season and while the parent bass are brooding the young. Black bass do not spawn until the temperature of the water reaches about sixty-five degrees. There may be some few bodies of shallow water where it reaches this temperature before the first or middle of June, but the great majority of waters in the State do not reach a temperature to induce the black bass to spawn before some part of the month of June, and no bass should be taken before July 1st. The enactment of a close season for black bass, and its enforcement,

to cover the month of June would do more to re-stock waters with black bass than any amount of fish at the command of the Commission for distribution.

Under the provisions of law for the erection of a hatchery in Delaware county, the Commission has selected a site on the Ulster and Delaware Railroad, near Hobart Station. This was surveyed by the State Engineer's department. The flow of water is sufficient to hatch twenty millions of trout eggs, summer temperature forty-six. The Commission examined the stream formed by this spring at various times during the summer, and measurements were made when the water was lowest in the streams in Delaware, Sullivan and adjoining counties. The site is a most advantageous one for various reasons. The water is pure and there is no opportunity for freshets to flood the rearing ponds or affect the hatchery troughs. It is near a line of railway connecting the Delaware and Hudson system with the West Shore Railroad, and in the heart of a region celebrated for its trout streams, and is a resort for thousands from the cities.

The Commission also selected a site for rearing ponds near Lime Lake, in Cattaraugus county. Here, too, we found an abundance of pure spring water conveniently located near a line of railway.

The water was extremely low throughout the State during the past summer, some streams drying up that were never known to dry before. In consequence of the drouth, the newspapers contained alarming statements that millions of trout had been destroyed. This I do not believe to be well founded. Employees of the Commission, sent out to rescue fish that might be stranded in pools, did rescue a number, but upon questioning them I find that it is their opinion that the fish would not have suffered had they re-



mained in the pools, as, in every instance, they had selected some place where springs came in from the bottom, and they would have survived, in all probability, had they not been rescued.

The hatchery to suffer most, perhaps, was Caledonia. Before the drought was at its worst the Commission secured an option for $300, on a driven well which flowed eight inches of spring water, temperature forty-nine, into the stream above the hatchery, and I have no doubt that this saved many of the fish in the rearing ponds and boxes.

The United States Fish Commission has been very liberal in its allotments of fish fry and eggs to this Commission and to the waters of the State, as shown in the summary, and I desire to record here that from the creation of this Commission, down to the present year, the United States Fish Commission has furnished for the Hudson River alone, the enormous number of 94,444,000 young shad. As the contributions from the National Commission exceed double the number of fry obtained from the river itself, the State is largely indebted to these contributions for the present supply of shad in the river, which yields annually shad to the value of about $180,000 at the nets.

In addition, the United States Fish Commission has promised a quantity of land-locked salmon eggs and some steel-head trout eggs, which will be delivered during the winter and spring. The steel-head trout is most highly recommended by Mr. Ravenel, the assistant in charge of the Division of Fish Culture, and a planting of nearly 100,000 fry has already been made in the waters of the State through the courtesy of the United States.

There are frequent demands for papers published in former reports of this Commission. The papers perhaps most in demand

are the Forestry Tracts, the article upon fish food, and an article upon fishways. If these papers could be printed separately in cheap form, and distributed to those who desire them, it would be of service to a large number of people who are unable to obtain the reports containing them.

Subdivision 5 of section 220 of the Forest, Fish and Game Law, under "powers of the Commission," provides:

"That the Commission shall prepare and distribute tracts giving information on the care and renewal of private woodlands, and with the approval of the Superintendent of Public Instruction and the Regents of the University, supply to schools, academies and colleges, the means of instruction in forestry."

The law, however, does not provide for the printing and distribution of articles giving instruction in regard to fish propagation, nor does the law quoted provide for money to print the tracts devoted to forestry. The State Printer gives an estimate for printing the papers I have referred to as follows: Per 1,000; Forest Tracts, $115.00, 68 pp.; Fishway, $45.00, 28 pp.; Food for Fishes, $35.00, 22 pp.

Of the condition of pheasants at Pleasant Valley Hatchery, I will report as follows:

Pheasants on hand—	
Hens (old birds)	48
Cocks (old birds)	18
	66

It is believed to be best to turn out old birds in part and replace them with young breeding birds, as follows:

Turn out old cocks	8
Turn out old hens	26
Total	34
Leaving old hens	22
Leaving old cocks	10
	32
Add young hens	38
Add young cocks	10
Total breeders	80

The 10 young cocks will be secured in exchange, thus bringing in fresh blood.

There are of young birds hatched this season	230
Reserved for breeding	48
For distribution	182
Old birds to be released	34
Total for distribution	216

Applications on file call for about 80 birds, and I would recommend that, so far as possible, the balance of the birds be distributed in different sections of the State considered most suitable, by sending them to people who will liberate them. The distribution will take place early in the coming spring.

Respectfully submitted,

A. N. CHENEY,

State Fish Culturist.

Fish Distribution.

SUMMARY FOR THE YEAR ENDING SEPTEMBER 30, 1900.

Brook trout fry	3,581,000
Brook trout fingerlings	151,183
Brook trout yearlings	95,215
Brook trout two and three years old	400
Brown trout fry	1,078,000
Brown trout fingerlings	106,253
Brown trout yearlings	53,848
Rainbow trout fry	130,000
Rainbow trout fingerlings	98,109
Rainbow trout yearlings	42,023
Lake trout fry	8,862,500
Lake trout fingerlings	201,900
Lake trout yearlings	13,370
Red throat trout fingerlings	62,750
Red throat trout yearlings	38,835
Whitefish fry	40,175,000
Tomcod fry	32,000,000
Frostfish fry	3,495,000
Pike-perch fry	51,000,006
Lobster fry	2,400,000
Land-locked salmon yearlings	2,400
Yellow perch	4,900
Shrimp	25,000
Black bass, small mouth	309

Mascalonge	1,200,000	
Shad	13,715,200	
Smelts	3,000,000	
Total		161,533,201

Eggs, fish fry and yearlings, contributed by the United States Fish Commission and planted in the waters of the State of New York during the year ending September 30, 1890, and not included in above summary:

Eggs	420,000	
Fish fry	50,428,800	
Yearlings	23,498	
Total		50,872,298
Grand total		212,405,499

Net Licenses.

During the year ending September 30, 1900, there were issued pursuant to the various provisions of the Forest, Fish and Game Law, licenses to net fish as follows:

For the Hudson River..................................	667
For Delaware River....................................	24
For Wappinger Creek...................................	11
For Rondout and Wallkill Creeks........................	15
For salt water..	21
For Chaumont and Black River Bays......................	86
For Lake Ontario......................................	102

For Lake Erie	106
For Perch Lake	3
For Millsite Lake	7
For Otsego Lake	47
For minnow nets	102
Total	1,191

The amount received for net license fees was $1,651.

Report of the Shellfish Commissioner.

To the Forest, Fish and Game Commission:

GENTLEMEN.—I have the honor to present the following report concerning the business of the Shellfish Department, which, under the general supervision of the Commission, has been assigned to my mangement, as Shellfish Commissioner.

The report of Mr. Charles Wyeth, C. E., in charge of the Hydrographic Survey of the Department, shows that during the fiscal year ending October 1, 1900, fifty-nine applications for grants of land for shellfish cultivation, have been received. Fifty of these applicants sought leases and nine sought franchises. The lands covered by these applications are located in Long Island Sound, and in Jamaica and Raritan Bays.

Fifteen hundred and two acres were applied for under the lease system, and 810 acres under franchises, making a total of 2,312 acres to be added to the area heretofore cultivated for shellfish production. These grounds, after due advertisement and the sale of the privileges, by auction, as required by law, have been surveyed, and leases and franchises respectively, have been executed by the Commission.

For the purpose of preserving the boundaries of the vast number of lots under water leased by the State, and that the maps of the Department, laboriously made and accumulated during a series of years, may have permanent value, the State has followed a policy of establishing coast signals along the shores of Long Island Sound, Staten Island and Jamaica Bay. These lines of signals now cover 180 linear miles, and thousands of recorded references thereto are

contained upon the books of the Shell Fish Department. It is recommended that a suitable sum be appropriated for the maintenance of these signals.

During the year the oyster planters have enjoyed comparative prosperity, the "set" of young oysters in Long Island Sound in the summer of 1899, which was so great as to be without precedent in those waters, has already been extensively handled, being sold to planters in other localities for seed.

Experiments have been made by some oystermen for the purpose of determining the utility of planting large spawning oysters for the purpose of annually securing a "set" upon particular grounds; notably Captain H. M. Randall, of Port Jefferson, has conducted such experiments, obtaining results which encourage him to undertake further work and outlay in that direction.

Perhaps the greatest problem with which oyster planters are called to deal, is that of the destruction of the natural enemies of the oyster, among which the starfish is without doubt most destructive. Improved methods of taking the stars are now in use, and by the constant exercise of vigilance and care their numbers are reduced to a degree which permits of profitable oystering. There is a community of interest among planters in the matter of destroying "stars." Should one man keep his ground ever so clean, his work might be entirely neutralized should his neighbor allow the stars to grow and accumulate upon contiguous territory.

Upon this principle the Suwassett Oyster Company has furnished a steamer, without expense to the State, for the purpose of taking up the stars upon the "natural growth" or free grounds, so preventing their spreading over the adjacent leased grounds.

Facilities for the collection of complete statistics of the shellfish industry have been lacking, but no doubt a few figures illustrative

of the extent of the business would be of interest. At the West Tenth Street Oyster Market, in the city of New York, during the last year fourteen firms have handled 1,270,550 bushels of oysters and 188,550 bushels of clams. At Fulton Market, five firms have handled 303,000 bushels of oysters and 129,900 bushels of clams.

There is an extensive business carried on in seed oysters which is entirely without the province of the market oyster dealers.

The oysters produced in the waters of this State are reputed to be the best in the world, they are always in demand and bring prices as high, and generally higher, than any other stock. Great quantities are shipped to the inland cities of the United States, and thousands of barrels are annually exported to foreign countries.

The present season, though opening late, on account of the continued mild weather during the fall, promises to be one of the best that the trade has known; the larger acreage, and improved methods of handling, with the abundant "set," has enabled the planters to keep pace with the increased and ever increasing demand, while prices are such that the delicious bivalve, so long considered a luxury for the rich, can be commonly found upon the tables of the poor, thus furnishing the masses abundantly and at moderate rates, with one of the most wholesome and appetizing foods known to our markets.

Clams, until a very few years, have been taken exclusively from the natural beds, which, in consequence, have been greatly depleted, until in many localities the supply has been practically exhausted, while the demand for these shellfish is ever increasing.

Planters are now giving attention to raising clams for market, and many acres of land under water are now being devoted to their cultivation.

For years past the markets have shown a growing scarcity of lobsters, and the State has endeavored to increase the supply by undertaking the propagation, and distribution in waters adjacent to Long Island, of this valued shellfish.

During eight years the Hatchery at Cold Spring Harbor has been engaged in this work, and for the year now closed 2,400,000 young lobsters have been planted in Long Island Sound from eggs hatched at Cold Spring, being 375,000 more than were planted during the preceding year.

Perhaps the best lobster grounds in the State are those located southwest of Fisher's Island, in what is known as "The Race." During the recent season for taking lobsters it was discovered by Mr. John E. Overton, State Oyster Protector, that these lobster fisheries were being worked almost exclusively by fishermen from the adjoining State of Connecticut, notwithstanding that Section 128 of the Forest, Fish and Game Law provides that "no person who has not been an actual resident of this State for six months shall take shellfish in the waters of this State, except in the capacity of employee of a person entitled to take the same." These fishermen were therefore warned that should they continue to take lobsters in "The Race," it would become necessary to enforce the law controlling the matter. Upon finding that they still persisted in taking lobsters in those waters, several cases were prosecuted and convictions obtained under the law above quoted. An appeal was however taken in one of these cases, it being alleged on behalf of the defendant that the fishermen from the village in Connecticut where these defendants reside, have from time immemorial fished in these waters as a means of making their livelihood and have gained by prescription a right to fish therein.

This issue is now pending for judicial determination. It is claimed for the residents of the Connecticut village in question, that their fishermen have been put to a loss of between twelve and fifteen thousand dollars by reason of the enforcement of the law above quoted. It may be added in this connection that the State of Connecticut has enacted similar laws, limiting the right to take shellfish in the open waters of Connecticut to residents of that State, and that these laws have been there enforced. It is possible that some legislation of a reciprocal character may be enacted by the Legislatures of the two States, which, in its operation may be beneficial to the citizens of both States.

Respectfully submitted,

B. FRANK WOOD,

Shellfish Commissioner.

Report of the Chief Game Protector.

To the Forest, Fish and Game Commission:

GENTLEMEN.—I have the honor to report that the work of the force under my supervision during the fiscal year just closed has been very satisfactory as a whole.

The change in heads of departments many times does not tend to increase confidence and efficiency in the field force, as the thirty-seven Protectors can be termed. But the action taken by your Honorable Body at the commencement of your administration by calling together the Protectors and the inquiry by you of each individual member of the force as to the work in his respective locality, together with the statement that you expected good results, and would be ever ready to advise and assist them in their work certainly had a good effect, and beyond a doubt inspired all to a greater activity. It gives me pleasure to be able to say that with very few exceptions the Protectors are all that can be expected of them.

Moreover the promotion of one of the Protectors to the position of Chief Firewarden inspires in the minds of the outside workers the hope that by attaining good results and making earnest efforts, promotion may some day come to one or all of them.

During the year the Protectors destroyed 1,537 illegal fish nets or nets being illegally used; they also destroyed 10 eel weirs, 10 spears, 1,052 set lines and tip ups being illegally operated, 1 jack light, 1 electric battery and 100 pounds of dynamite, all found

where the law prohibits. The sum total of these illegal devices for the taking of fish is 2,615 and the value of the same was $30,412.

In the matter of prosecutions for violation of the Forest, Fish and Game Law, I have the honor to say that the number of cases was 345, of which all but 21 were successful. In the very few unsuccessful cases the defendants were either discharged by court or acquitted by jury. Thus it will be observed that the percentage of errors of judgment in instituting proceedings by a force of men who are paid only $500 per year was gratifyingly small.

The amount of recoveries for fines and penalties was $10,565.61, of which $8,183.48 has been collected and paid to the State Treasurer. The remaining $2,382.13 was paid for services of attorneys, fees of justices and constables and small disbursements at trials. In addition to the recoveries above reported, the sum of $583 was imposed as fines or penalties on divers persons who failed to pay the same, and in lieu thereof served or are serving one day in jail for each dollar which they failed to pay.

There were thirty-five cases of timber cutting on State land in the Forest Preserve. The amount recovered for the trespasses was $2,042.21. In this connection I will say that there now is very little disposition to cut timber on State land. Most of the trespasses here noted were caused by people mistaking the boundary lines of State lands. The majority of these lines have become very dim owing to the long lapse of time since the townships were subdivided and the lines run. It is usual when such cases are discovered for the offender to settle for the timber without a contest. Trespassers are invariably made to pay much more than the timber is worth, and therefore there is now a moral respect for the law where formerly State timber was considered proper prey for everyone. The trespassers were scattered over a wide expanse of territory and in many

instances were remote from any habitation. Constance surveillance is therefore necessary, else the timber will be removed from the place of cutting before the local Protector discovers the wrong-doing.

In this connection I wish to say that an increasing sentiment in favor of the "Game Law," so called for the sake of brevity, is observable. There is also, I am pleased to report, less tendency to clear offenders by juries of the violators' neighbors than was formerly the case. It was only a short time ago when trespassers were openly committed and the offenders were of a boastful and defiant spirit, relying confidently on neighborhood feeling and brotherly spirit to stand together "agin the game law." It was heretofore the case that cities were relied on to lend the material and moral support necessary in enacting and enforcing fish, game and forest legislation. Residents of rural districts, and many agricultural journals circulating principally among farmers, were opposed to the establishment of closed seasons for fish and game. I am confident that there is an awakening among residents of the country to the fact that it is for their good as well as for the good of the city people that the supply of fish and game be protected, which of course can only be done by enacting and efficiently enforcing the law regarding the same.

I would respectfully call your attention to the fact that the number of Protectors authorized by law is inadequate to the work of efficiently enforcing the forest, fish and game laws of the State. The number provided for, in addition to myself, is thirty-seven, of which three are of necessity confined to the protection of shellfish, and one is detailed as required by law to the supervision of the St. Lawrence Reservation or International Park. Thus, there are but thirty-three landmen to cover sixty-one counties. Some of the

counties are so large and the means of travel so inconvenient that several Protectors could work in the same without coming in contact with each other. This is the case in most of the Adirondack counties, as well as some of the Catskill counties, in which there are large tracts of State land.

There is no Protector in the tier of six counties east of the Hudson River, although this region is naturally prolific of fish and game. Formerly there were two Protectors in that tier of counties, but they were legislated out of office when the Fish and Game Commission was consolidated with the Forest Commission in 1895. In the Adirondack counties of Herkimer, Hamilton, Warren, Essex, Franklin and St. Lawrence, containing approximately 5,000,000 acres of land, there are only eight Protectors, one of whom is located on the St. Lawrence River. In these Adirondack counties there are 1,000,000 acres of State forest land to protect in addition to the protection of fish and game. Under the circumstances I think the force should be increased to fifty or more men, with the understanding that two of them should be appointed in the counties east of the Hudson River, and seven at least in the Adirondack counties above mentioned, one in the Catskills (Sullivan county), one in Onondaga or Cortland county, and one at or near the head of Cayuga Lake. At present there is no Protector in New York city, although I am firmly of the opinion that one or more could work profitably in that great market for fish and game. The general public does not object to appropriations for the purchase of forest lands, nor to the maintenance of hatcheries, which they readily concede are very beneficial in restocking the numerous depleted waters of the State, and it is confidentially asserted that more and better paid Protectors should be furnished to look after the State's interest along these lines.

In this connection I desire to call your attention to the fact that the work required of the Protectors is of a character dangerous to health and life. They must enter alone on an almost trackless wilderness and on the large lakes and rivers, and maintain themselves there for days at a time; thus they must have the skill and courage of experienced woodsmen and the ability of trained oarsmen. They must be on duty under cover of nightfall, for it is at that time that nearly all violations occur with fish pirates and pot-hunters. They must take their lives in their hands and make warfare on illegal operators of fish nets, who are a most desperate class of citizens, prone to the use of firearms in opposition to the law. They have to be transferred from their home counties, at much expense, to other and distant counties to work *in cognito* where the local Protector is known to every citizen, and word is sent of his coming in advance of his movements. For all of this hazardous and laborious work, they are paid the small salary of $500 a year. It is thus expected that the Protector will devote his entire time and best efforts for the benefit of the people for the small sum of $41.66 per month. Paying them so meagerly, it would seem as though their necessary and proper travelling expenses should be paid without any limit as to the amount thereof. At present they are allowed by law the sum of $37.50 per month for necessary expenses, even though they are compelled to live at hotels, when away from home, and may spend $100 per month for railroad, boat, livery, help and sustenance they are reimbursed only to the amount allowed by law, namely, $37.50 per month. I am aware that many criticise the State departments as constantly increasing the expense of government, but where is there in this country work of this character so poorly rewarded? It seems to me that work that is worth doing at all is worth doing aright, and if Protectors are paid suitably for

their services, better results will be accomplished. Therefore I recommend that the salary of the Protectors be fixed at $75 per month and that they be allowed necessary expenses to the amount of $50 per month. In fixing their salary at the amount stated, I think it wise and proper to provide that they must not have any other business that will in any manner interfere with their work as Protectors, and that they must give their entire time and attention to the work of the Department. I would also recommend that the provisions of the law that gives Protectors one-half of recoveries be abolished in case their salaries are made $75 per month, for the reason that invariably when a case is reached for trial defendant alleges selfish and financial interests of the prosecuting official, with a cry that the only object is blood money, which in many instances has a tendency to lessen the fine or the judgment, thereby defeating the ends of justice.

Each year of the legal work of this branch of the Department, weak spots are found in the law under which prosecutions must be made. Such instances have been found during the last year, and I trust amendments will be proposed that will perfect the law wherever found defective.

In conclusion I desire to tender my thanks to your Honorable Body for the support always cordially given me in conducting the work under my supervision.

All of which is respectfully submitted.

J. WARREN POND,

Chief Game Protector.

Forest, Fish and Game Commission.

Financial Statement.

For Fiscal Year Ending September 30, 1900.

	Disbursements.	Balance, Oct. 1, 1900.
Fish propagation:		
Maintenance of hatcheries and hatching stations and collection and distribution of fry....Schedule A.	$52,772 66	$12,470 07
Salary and expenses of State fish culturist ....Schedule B.	3,825 25	74 75
Salary and expenses superintendent hatcheries ....Schedule B.	1,600 58	1,499 42
New hatchery in Delaware county....	....	5,000 00
New hatchery in Cattaraugus county....	....	2,500 00
Total	$58,198 49	$21,544 24
Fish and game protection:		
Salaries and expenses 35 fish and game protectors, special agent and clerk....Schedule C.	$38,287 83	$4 14
Fines and penalties:		
Moieties paid complainants....Schedule D.	3,024 23	....
Justice, constable, witness fees, etc....Schedule D.	2,594 23	8,502 70
Attorney fees and expenses....Schedule D.	4,053 11	....
Salary and expenses oyster protectors, cashier and clerk shellfish department....Schedule E.	7,045 93	54 07
Expenses of naphtha launch, erection of signals, rent and office expenses shellfish office ....Schedule F.	1,602 54	2,475 18
Total	$56,607 87	$11,036 09
Forestry account:		
Superintendent forests, salary and expenses ....Schedule B	$3,455 35	$444 65
Rebates to towns account fighting forest fires ....Schedule G.	5,353 31	808 43
Chief firewarden and foresters, salary and expenses ....Schedule H.	1,292 98	6,207 02
U. S. forestry experts, expenses....Schedule I.	671 76	1,328 24
Forest preserve fund....	....	1,036 69
Forest Commission counsel....	....	1,000 00
Total	$10,773 40	$10,825 03

Miscellaneous:		Disbursements.	Balance, Oct. 1, 1900
Commissioners' salaries and expenses..	Schedule B.	$17,000 00	....
Assistant secretary	Schedule B.	1,553 70	$446 30
Clerical force	Schedule B.	4,440 00	1,356 17
Official salaries and expenses.........	Schedule B.	100 91	3,009 64
State reservation, St. Lawrence river..	Schedule J.	3,959 39	5,201 09
Cayuga lake weirs and traps..........	Schedule K.	254 36	....
Office expenses	Schedule L.	5,042 12	2,092 51
Game bird propagation...............	Schedule M.	618 90	....
Cantwell & Cantwell...........................		....	266 98
State fair exhibit....................	Schedule M.	180 41	69 59
Printing extra copies Game Laws....	Schedule M.	225 00	....
Salmon river fishways	Schedule M.	49 35	1,450 65
Total		$33,424 14	$13,892 93
Grand total		$159,003 90	$57,298 29

Summary of Various Accounts, Exclusive of Regular Accounts with the Comptroller.

Receipts.

Fines and penalties account (Schedule O)...	$8,183 48
Sale of logs siezed (Schedule Q)...........	679 37
Net license fees (Schedule P)..............	1,651 00
Rental of State lands (Schedule Q).........	20 00
Shellfish franchises and leases (Schedule Q).	2,173 41
Jas. Annin, Jr., sale of timber.............	13 00
Jas. Annin, Jr., sale of fish................	19 04
M. C. Finley, sale of fish..................	40 18
J. H. Marshall, rebate on claims...........	6 90
Jas. Annin, Jr., balance of rebate on fish eggs	2 00
Jas. Annin, Jr., Superintendent, refund of advance	500 00

W. P. Titcomb, rebate on transportation fish car	$5 40	
Balance trespass account, State Bank	1,099 56	
Balance fines and penalties account, State Bank	4,713 76	
		$19,107 10

Payments.

Nov.	2.	By cash to State Treasurer	$799 13	
Dec.	8.	By cash to State Treasurer	1,071 90	
Jan.	3.	By cash to State Treasurer	1,282 48	
Feb.	5.	By cash to State Treasurer	947 78	
March	6.	By cash to State Treasurer	662 60	
April	6.	By cash to State Treasurer	534 75	
	27.	By cash to State Treasurer	5,813 32	
		By cash to State Treasurer	1,477 59	
	30.	By cash to State Treasurer	500 00	
May	8.	By cash to State Treasurer	199 55	
June	5.	By cash to State Treasurer	1,000 72	
July	6.	By cash to State Treasurer	622 68	
Aug.	10.	By cash to State Treasurer	909 79	
Sept.	7.	By cash to State Treasurer	1,104 97	
Oct.	5.	By cash to State Treasurer	2,179 84	
				$19,107 10



